# Diagnosing Depression Among New Patients In Ambulatory Training Settings

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*Abstract:* A research-validated instrument, based upon the ***Diagnostic and Statistical Manual of Mental Disorders-III***, is used as a "gold standard" to compare physician assessments of depression. Twenty-seven of 294 patients (9.2 percent) presenting to three primary care clinics for the first time met clinical criteria for a depressive disorder. Although the 27 depressed patients differed from the nondepressed patients on sociodemographic characteristics, prior service utilization patterns, and clinical variables, only 7 of the 27 were diagnosed as depressed by their primary care physicians. Factors associated with accurate assessment include comment in the patient's chart of a prior psychiatric history. Many depressed patients reporting high levels of dysphoria on a screening instrument had no mood symptoms recorded on their charts. (JABFP 1988; 1:91-7.)

Differentiating psychiatric from somatic illness is an important and frequent task for family physicians. Indeed, 50 to 60 percent of patients receiving help for mental illnesses are treated exclusively in primary care settings[1,2]; furthermore, such patients are overrepresented among high-service utilizers.[3,4] While the coexistence of physical and psychiatric morbidity is well known by family practitioners,[5] the detection of psychiatric illness in the individual patient remains troublesome. Generalists underdiagnose psychiatric illness in general and depression in particular.[6-8] It is unknown whether this seemingly inaccurate assessment reflects poor diagnostic acumen, faulty research methodology, the physician's hesitation to "label" patients with mental illness, or charting behavior.[9-12] Jencks has cautioned that recorded diagnoses per se may be a poor index of recognition, because mental disorders are not listed as diagnoses for most primary care visits during which physicians prescribe psychotropic drugs or provide psychotherapy.[13] While psychiatric illness has been the focus of a number of studies regarding accuracy of physician assessment, somatic disorders have not been subject to similar scrutiny.

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This research was supported by grant MH-35352 from the National Institute of Mental Health, Rockville, MD. Presented in part at the Northeast Regional Meeting of the Society of Teachers of Family Medicine, October 1985.

## Difficulties of Diagnosis

The diagnosis of depression presents a particularly difficult problem. Patients with dysphoria, poor appetite, sleep disturbance, or fatigue may be experiencing a depression masked by physical symptoms, a somatic illness producing saddened affect, or concurrent depression and physical illness.[14] Some patients manifest emotional problems through somatic symptoms,[15,16] or they may perceive somatic complaints as the ticket of admission in primary care settings.[17] Some observers have suggested using screening instruments to identify patients at high risk for depression, but this procedure has produced inconclusive results.[18]

An additional problem is that the symptoms of depressed patients in family practice settings may differ from the symptoms of patients seen in mental health settings, and methods of diagnosis derived in mental health settings may be inappropriate in primary care settings. For example, McClelland, et al.[19] suggest that persons with "obvious" mental illness refer themselves or are referred to the mental health sector, while persons displaying more obscure or somatic manifestations are seen in primary care sectors. Such overt and covert referral mechanisms may influence diagnostic accuracy as much as the assessment skills of the clinician. Interestingly, while psychiatrists miss

depression less often than do generalists, their accuracy is also poor; mental health specialists tend to overdiagnose depression. In one study they assigned 164 percent more such diagnoses than were assessed via a research-validated diagnostic interview.[20]

Given these dilemmas, the present study was undertaken to identify factors associated with the clinical diagnosis of depression among new patients visiting primary care settings. Our purpose was to determine distinguishing characteristics of depressed patients compared with nondepressed patients and to identify patient demographic variables, premorbid histories, and symptom patterns associated with physician ability to diagnose depression accurately. Unlike previous studies, which have used screening scores as the yardstick for measuring physician accuracy (or only charted diagnoses with no yardstick at all), we used a research-validated diagnostic instrument to derive the diagnosis of depression and, thereby, better understand the nature of the clinical assessment.

## Methods

### *Subjects and Study Protocol*

The study was conducted in academic ambulatory settings, two family health centers, and one internal medicine clinic. Full details of subject selection, instruments, and methodology are described in an earlier report by Schulberg, et al.[20] Methodology pertinent to the present study is briefly outlined here.

Potential subjects were adult patients with no history of prior care or contact at the study site within the previous 6 months. Of 1,554 such patients who completed the Center for Epidemiology Studies-Depression Scale (CES-D), a depression screening questionnaire, at the time of the visit, 418 were excluded from further study because they were not given return appointments by their physicians, 47 were not included because they refused to discuss further participation, and 49 were not a part of the study for administrative reasons. The remaining 1,040 were considered eligible and were asked to return within 10 days for an interview that used the Diagnostic Interview Schedule (DIS). This time frame minimized the possibility of spontaneous remission or changes resulting from medication prescribed. Interviews were conducted with 294 persons (28.4 percent). The remaining 746 could not be scheduled within the 10-day time frame, could not be reached, or refused to participate. The demographic characteristics of those interviewed were compared with those not interviewed; the former group was found to be significantly younger and composed of more women than the latter.[20]

### *Instruments*

The Diagnostic Interview Schedule (DIS), Version Three, is a highly structured and comprehensive diagnostic interview. The instrument is computer-scored according to set algorithms based on criteria for psychiatric diagnoses from the *Diagnostic and Statistical Manual of Mental Disorders-III* (DSM-III).[21] To diagnose depression that had occurred within the past 2 weeks, we used a modified version and added an algorithm to assess adjustment disorders with depressed mood.[22] Six research associates trained by project clinicians administered the DIS, as well as questionnaires about stressful life events and use of health/mental health services in the preceding 6 months. During this diagnostic interview, the patient completed the Social Adjustment Scale-Self Report (SAS-SR), which assesses social functioning.[23]

At the index clinic visit, patients completed the CES-D just before seeing the physician. This screening instrument is a self-administered 20-item questionnaire, which measures the patient's state with regard to mood and vegetative symptoms (sleep, appetite, energy level) within the preceding week.[24] The CES-D has been used frequently in primary care research; sizable portions of those scoring 16 or greater (possible range 0–60) have been diagnosed as suffering from major depressive or other affective disorders.[20,24] Our purpose in using this instrument was to provide an independent measure of the patient's recent symptoms that potentially influence the physician's suspicion that depression may be present.

### *Physician Assessment*

Physicians (primarily internal medicine and family practice residents) who participated in the study at the three primary care sites numbered 134. Their judgments about whether a patient was depressed at the index visit, as well as about data regarding the patient's clinical characteristics, were obtained through a systematic review of the written record of the index visit. A

**Table 1.** *Selected Characteristics of Patient Cohort.*

| Variable | With DIS Depression (n = 27) | Without DIS Depression (n = 267) | P* |
|---|---|---|---|
| Sociodemographic | (Percent) | (Percent) | |
| Women | 81.5 | 75.7 | 0.50 |
| Minority | 29.6 | 41.2 | 0.24 |
| Married | 14.8 | 33.8 | 0.04 |
| | (Mean) | (Mean) | |
| Age, years | 35.2 | 33.2 | 0.32 |
| Education, years | 12.4 | 12.6 | 0.72 |
| Annual income × $1,000 | 5.4 | 10.7 | 0.001 |
| Prior Service Utilization | (Percent) | (Percent) | |
| Discussed emotional problem at usual health facility past 6 mos | 63.0 | 20.4 | 0.001 |
| Discussed emotional problem at other health facility in past 6 mos | 65.0 | 17.9 | 0.001 |
| Ever visited private practice mental health specialist | 37.0 | 15.4 | 0.005 |
| Ever visited community mental health center | 40.7 | 13.5 | 0.001 |
| Clinical Status | (Mean) | (Mean) | |
| No. upsetting life event past 6 mos. | 2.6 | 1.4 | 0.001 |
| No. lifetime DSM-III symptoms | 33.4 | 17.7 | <0.001 |
| No. current DSM-III diagnoses | 1.7 | 0.8 | <0.001 |
| CES-D score | 36.8 | 20.5 | <0.001 |
| SAS-SR score | 2.4 | 1.9 | <0.001 |

*T-test for ordinal variables and chi-square for nominal variables.

broad array of acceptable diagnoses (described in Schulberg, et al.[20]) accommodated the possibility that a physician accurately recognized a depressive disorder but failed to specify it precisely within DSM-III terminology. Study site physicians were aware that they were participating in a study of psychiatric decision making but not aware of the precise aims of the study or the specific patients involved. They remained blind to the patients' questionnaire responses, scores, and research-derived DIS diagnoses. No differences were found between assessments conducted at family practice or internal medicine sites.

## Results

The results are presented in two parts. First, the characteristics of patients diagnosed as depressed by the DIS are compared with those not so diagnosed. Then, within the group determined by the DIS to be depressed, we compare those given the clinical diagnosis of depression by the physician with those who were not diagnosed as such at the index visit.

### *Depressed versus Nondepressed (DIS Diagnosis)*

Twenty-seven of the 294 study patients (9.2 percent) were assessed as currently depressed by the Diagnostic Interview Schedule. Eighteen had a major depressive disorder; the other 9 had dysthymia or adjustment disorders with depressed mood. Sociodemographic characteristics, prior service utilization patterns, and clinical status of the depressed and nondepressed groups are presented in Table 1.

With regard to sociodemographic characteristics, significantly fewer depressed persons were married, and their mean annual income was $5,000 lower than that of nondepressed persons. No intergroup differences were found among the other sociodemographic factors. However, their patterns of health services utilization in the 6 months preceding the index visit were significantly different. Depressed persons

**Table 2.** *Percentage of Patients Reporting Current Symptoms.*

| Symptom | With DIS Depression (n = 27) | Without DIS Depression (n = 267) | P* |
|---|---|---|---|
| | (Percent) | (Percent) | |
| Abdominal pain | 29 | 18 | 0.18 |
| Joint pain | 25 | 14 | 0.16 |
| Back pain | 0 | 7 | 0.19 |
| Headache | 38 | 19 | 0.03 |
| Myalgias | 25 | 8 | 0.01 |
| Fatigue | 21 | 16 | 0.50 |
| Dyspnea | 17 | 11 | 0.36 |
| Weight change | 17 | 14 | 0.69 |
| Appetite change | 17 | 5 | 0.02 |
| Specific depressive symptoms | 63 | 39 | 0.02 |
| Pain (any location, not including headaches and myalgias) | 44 | 36 | 0.36 |

*Chi-square.

had visited various health and mental health facilities with double to triple the frequency of nondepressed persons.

In terms of clinical status at the time of the index visit, the depressed and nondepressed groups differed significantly on virtually all indices pertaining to psychiatric status, health status, and social functioning. Patients in the DIS-depressed group recently had experienced a greater number of upsetting life events, had more lifetime DSM-III symptoms and current DSM-III diagnoses, scored more poorly on the depression screening scale (CES-D) and the social functioning scale (SAS-SR), and presented with more physical symptoms implicating a greater number of organ systems. While significantly more depressed patients had discussed an emotional problem with a health professional in the preceding 6 months, this discussion rarely was the main reason for seeking care; only 26 percent of either depressed or nondepressed groups indicated that an emotional problem was their chief complaint during this time interval.

Given our findings that depressed patients reported significantly more current symptoms than did nondepressed patients ($\bar{X}$ = 4.3 versus 3.0, $P$ = 0.006), we compared the specific problems troubling each group (Table 2), because system pathology as well as symptom disturbance patterns are thought to distinguish depressed from nondepressed medical patients.[25,26] Depressed patients were found to have experienced headaches, myalgias, and appetite change significantly more often than nondepressed patients. When distributions of the summary variables "specific depressive symptoms" and "pain (any location)" were compared, the former but not the latter significantly distinguished the two groups. Specific depressive symptoms were also the most frequent symptoms recorded among nondepressed patients. The only significant difference in terms of organ system implicated by symptoms between depressed and nondepressed patients pertained to the central nervous system. Forty-one percent of depressed patients, compared with 21 percent of nondepressed patients ($P$ = 0.02), experienced symptoms in this system (i.e., headache, vertigo, tremor, ataxia, dysesthesias, and memory loss).

A stepwise logistic regression was performed, which included the following predictors of depression: number of symptoms, number of organ systems with positive symptoms, and the specific symptoms suggested by Table 2 as distinguishing depressed from nondepressed patients. The variable "number of symptoms" was the only one found capable of predicting depression in the regression analysis, suggesting that the absolute number of symptoms rather than particular symptoms distinguished among these primary care patients with and without an affective disorder.

### *Physician Diagnosis of Depression*

Having analyzed the characteristics of DIS-depressed (n = 27) and DIS-nondepressed patients (n = 267), the DIS-depressed group was studied to determine whether members of this cohort whom physicians diagnosed as depressed (n = 7) were different from those whom physicians did not so diagnose (n = 20). The physician's formulation of depression was required to be an explicit written diagnosis in the chart rather than simply a restatement of the patient's psychiatric and/or vegetative-motor symptoms.

With regard to sociodemographic characteristics and service utilization patterns, there were few distinctions between the two groups (Table 3). Patients judged to be depressed had a significantly lower annual income than patients not so diagnosed. Physicians accurately assigned depres-

**Table 3.** *Selected Characteristics of DIS-Depressed Patients (n = 27) in Relation to Physician Assessment.*

| Variable | Physician Assessment | | P* |
|---|---|---|---|
| | Depressed (n = 7) | Not Depressed (n = 20) | |
| Sociodemographic | (Percent) | (Percent) | |
| Women | 57.1 | 90.0 | 0.09 |
| Minority | 28.6 | 30.0 | 1.00 |
| Married | 0.0 | 20.0 | 0.55 |
| | (Mean) | (Mean) | |
| Age, years | 38.3 | 34.2 | 0.34 |
| Education, years | 12.4 | 12.4 | 0.97 |
| Annual income × $1,000 | 2.9 | 6.4 | 0.02 |
| Prior Service Utilization | (Percent) | (Percent) | |
| Discussed emotional problem at usual health facility past 6 mos | 85.7 | 55.0 | 0.20 |
| Discussed emotional problem at other health facility in past 6 mos | 66.7 | 64.3 | 1.00 |
| Ever visited private practice mental health specialist | 57.1 | 30.0 | 0.36 |
| Ever visited community mental health center | 57.1 | 35.0 | 0.39 |
| Clinical Status | (Mean) | (Mean) | |
| No. upsetting life events past 6 mos | 1.4 | 3.0 | 0.02 |
| CES-D score | 35.3 | 37.4 | 0.65 |
| SAS-SR score | 2.3 | 2.4 | 0.17 |

*T-test for ordinal variables and Fisher's exact test (two-tailed) for nominal variables.

sive diagnoses to fewer women than men ($P = 0.09$ by Fisher's exact test, two-tailed).

Clinical status indices were also essentially similar for DIS-depressed patients to whom physicians did and did not assign such a diagnosis. For example, mean scores on the CES-D (indicating dysphoria and vegetative-motor symptoms) were equally high in both patient groups (35.3 and 37.4). Only the mean number of current physical symptoms significantly distinguished the two groups. A detailed review of these symptoms revealed that fatigue and appetite change were present more often in the diagnosed than undiagnosed groups (80 percent versus 10 percent and 75 percent versus 15 percent, respectively). On the other hand, patients for whom the diagnosis was not correctly made reported more upsetting life events during the 6 months preceding the index visit than did patients whom physicians reported as depressed.

With regard to physician awareness, as noted in the chart, of a patient's psychiatric history, physicians almost never diagnosed a patient as depressed when they noted no such history (data not shown, but available upon request). Only 1 of the 16 patients lacking such a chart notation was judged depressed; conversely, 6 of the 11 patients noted as having a psychiatric history were diagnosed as depressed ($P = 0.009$ by Fisher's exact test, one-tailed). A similar pattern was found for current psychiatric symptoms. None of the 13 patients lacking a notation about current psychiatric symptomatology was diagnosed by the physician as depressed; however, 7 of the 14 patients for whom physicians noted psychiatric symptoms were considered depressed ($P = 0.004$ by Fisher's exact test, one-tailed). These two clinical factors had a synergistic impact on diagnostic decision making. Physicians noted both the psychiatric history and psychiatric symptoms for 6 of the 7 patients whom they accurately diagnosed as depressed. Only 1 depressed patient noted as having both a psychiatric history and symptoms failed to be identified as depressed.

## Discussion

Because of sampling and design constraints, the findings generate hypotheses for further investigation rather than "predictors" of the accurate diagnosis of depression in primary care settings. The cohort of patients studied is small, those who

completed the protocol are possibly atypical, and the family practice and internal medicine residents are not necessarily representative of practitioners in general. Our procedure for determining physician awareness of psychiatric symptoms and the diagnosis of depression (i.e., examining chart notations) probably underestimates physician recognition. Also, by examining diagnoses assigned after one index visit, our design does not allow for the common practice of deferring a definitive diagnosis until after additional data are gathered in subsequent visits.

Despite these limitations, the study represents a methodological advance by using a DSM-III standardized diagnostic instrument as a "gold standard" against which to compare physician judgments, rather than relying on approximations generated by screening instruments.[27,28] Our results are in accord with those of Widmer and Cadoret[25,26] who also have found a high service utilization and frequency of somatic complaints among depressed patients. However, their study took place in a vastly different setting (a solo rural family practice) and was a retrospective analysis of patients diagnosed by the physician as depressed. Without a criterion measure against which to assess the physician's diagnostic accuracy, the possibility remained that physician-labeled "depression" did not represent (or represented only in part) true DSM-III diagnosable depression in the practice.

Our data suggest that patients independently assessed as depressed by the DIS have certain characteristics that distinguish them from their nondepressed peers. They are likely to have had more recent upsetting life events, more physical symptoms, and more organ systems implicated by these symptoms. They are also more likely to have used mental health facilities and discussed emotional problems with a health care provider.

Despite these distinguishing characteristics, some depressed patients were easier to diagnose than others. For example, the 20 patients whom physicians did not judge as depressed surprisingly reported more stressful life events in the 6 months preceding the index visit than those whom physicians diagnosed. Because these events were often noted in the charts, we speculate that physicians chose to ascribe evident emotional distress to what may have appeared to be transitory situational factors rather than to a diagnosable psychiatric illness. These data may also indicate that affective symptoms frequently are recognized even though they are not judged sufficiently severe to warrant a formal diagnosis.

Was the physician's diagnosis of depression influenced by the severity of the presenting symptomatology? Severity, as measured by responses on the independently administered CES-D, by mean number of physical symptoms, and by the specific DIS diagnostic formulation (e.g., major depression versus dysthymia), appears to be unrelated to the physician's determination of whether the patient was experiencing an affective disorder. On the other hand, the physician's detection of a prior psychiatric illness strikingly impacts on the assessment decision and influenced the power of psychiatric symptoms to aid the diagnosis: the presence of psychiatric symptoms is 75 percent sensitive in detecting depression among the 11 patients with a positive psychiatric history but only 17 percent sensitive among the 16 patients without a psychiatric history ($P = 0.02$ by Fisher's exact test, one-tailed). This finding is in accord with Kessler and colleagues' recent observation that a current mental disorder is more likely to be recognized when the physician records a patient's prior psychiatric history.[29]

Primary care physicians face a difficult task in detecting depressive illness in the course of daily practice. Many patients with depressive symptomatology do not have depressive illness; yet, a sizable percentage of those who do have depressive illness do not complain of depressive symptoms. Further studies are required to describe what occurs during the clinical encounter itself so as to elucidate optimal strategies for interviewing and problem solving.[30] Physicians need to probe for depressive symptomatology in their patients with multiple physical symptoms and to inquire about previous psychiatric history as well as about the frequency of recent health service utilization. Training about depression in primary care settings needs to be improved.[31] It should be directed at the unique ways in which these patients present their problems and toward the helpful clues to be found in the medical history. Otherwise, family practitioners run the risk of being one more "stop" among the many doctors the patient consults in searching for relief.

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## Editorial Comment

This study supports the conclusion that primary care physicians probably need more effective interviewing and integrative skills in their resident training years, so depressive illness can be better recognized and then documented in the "medical record." Because the interviewing physicians were mostly residents, it would be interesting if the authors could determine if the residents in family medicine did better, worse, or about the same than their internal medicine resident peers at the same level of training. Also, would a more experienced clinician, after training years, do a better job in recognizing depression and documenting it with the first contact interview in a primary care setting? The major point is well made that one needs to look constantly for a significant depressive problem in the patients in the medical setting.

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